IN THE UNITED STATES PATENT & TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Group Art Unit: 3726

Examiner: Jermie E. Cozart

Application of	:	Stefan Kastner
Serial No.	:	10/019,706
Filing Date	:	May 1, 2002
Entitled	:	METHOD FOR PRODUCING AN ALUMINUM COMPOSITE MATERIAL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

BRIEF ON APPEAL

Appellant submits the following Brief on Appeal in connection with the above-identified patent application.

I. REAL PARTY IN INTEREST

The real party in interest in the above application is the assignee, Hydro Aluminium Deutschland GmbH, a corporation organized and existing under the laws of Germany, and having an office and place of business located at Ettore-Bugatti-Strasse 6-14, Koln, Germany 51149. Hydro Aluminium Deutschland GmbH is a subsidiary of Hydro Aluminium, which in turn is a subsidiary of Norsk Hydro, both of Norway.

II. RELATED APPEALS AND INTERFERENCES

There are no other pending appeals, or prior or pending interferences or judicial proceedings, known to Appellant, the Appellant's legal representative, or the assignee which may be related to, directly affect or be directly affected by, or have a bearing on the Board's decision in the pending appeal.

On December 14, 2005, a Notice of Appeal was filed by Appellant, and on February 13, 2006, a Brief on Appeal was filed by Appellant. On May 2, 2006, a non-final Office action was mailed reopening prosecution, stating new grounds of rejection. A decision by the Board was not rendered.

III. STATUS OF CLAIMS

Claims 1-17 were presented for examination.

Claims 1-5 have been cancelled.

Claims 6-17 stand rejected.

Claims 6-17 are on appeal.

IV. STATUS OF AMENDMENTS

Appellant has not filed an Amendment Under 37 C.F.R. §1.116.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Referring to the Substitute Specification[1] and the Drawings, the invention of independent claim 6 is a method for producing an aluminum composite material. See page 1, lines 4-5. The method includes sawing at least one cladding layer (2, 3, or 4 in FIGS. 1 and 2) of a specified thickness suitable for use as a cladding layer from a first ingot made from a first aluminum material (page 4, lines 26-34; and page 5, lines 1-15, lines 24-26 and lines 31-32); placing the cladding layer (2, 3, or 4 in FIGS. 1 and 2) on a side of a second ingot (1 in FIG. 1) made from a second aluminum material (page 7, lines 2-8 and lines 24-29); and rolling the cladding layer (2, 3, or 4 in FIGS. 1 and 2) and the second ingot (1 in FIG. 1), wherein rolling includes several roll passes to produce the aluminum composite material (page 7, lines 2-8).

Independent claim 14 is a method for producing at least one aluminum cladding layer from a first ingot made from a first aluminum material. See page 1, lines 8-10. The cladding layer (2, 3, or 4 in FIGS. 1 and 2) produced by the method of claim 14 is for use in an aluminum composite material, which is produced at least partially by placing the cladding layer on a side of a second ingot made from a second aluminum material, and rolling the cladding layer and said the ingot with several roll passes to produce the composite material. See page 7, lines 13-21. The method of independent claim 14 includes sawting the aluminum cladding sheet (2, 3, or 4 in FIGS. 1 and 2) from the first ingot (5 in FIG. 2) at a specified thickness suitable for use as a cladding sheet for the composite material. See page 5, lines 14-15 and lines 24-26; and page 7, lines 20-23.

[1] "Substitute Specification" refers to the substitute specification deposited with the USPTO on July 26, 2002.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The ground of rejection on appeal is:

(1) The final rejection of claims 6-17 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 2,800,709 to Gaul in view of CN 1,105,615 to Hu.

VII. ARGUMENT

A. The Final Rejection of Claims 6-17 under 35 U.S.C. § 103(a) as being unpatentable over Gaul (2,800,709) in view of Hu (CN 1,105,615).

In the Office Action dated May 30, 2007, and in the Office Action dated January 29, 2008, the Examiner rejected claims 6-17 under 35 U.S.C. § 103(a) as being unpatentable over Gaul in view of Hu.[2] According to the Office Action, Gaul discloses producing an aluminum composite material where a cladding layer from a first aluminum material is placed on a side of an ingot made from a second aluminum material. The Office Action asserts that the cladding layer and ingot are rolled using several roll passes to produce the aluminum composite. The Office Action acknowledges that Gaul fails to disclose sawing the cladding layer from a first ingot made from a first aluminum material in a longitudinal direction. However, the Office Action asserts that Hu discloses sawing a metal ingot in a longitudinal direction using a band saw.

The Office Action concludes that it would be obvious to one having ordinary skill in the art at the time the invention was made to saw the cladding layer of Gaul in a longitudinal direction using a band saw, in light of the teachings of Hu. Appellant respectfully disagrees with the Office Action for the following reasons.

References fail to teach or suggest every element

Appellant respectfully submits that a *prima facie* case for obviousness has not been established at least because Gaul and Hu, alone or in combination, fail to teach or

[2] Appellant respectfully submits that at least claims 6 and 14 have been rejected twice on the same grounds. That is, claims 6 and 14 were rejected on May 30, 2007 and January 29, 2008, as being unpatentable over Gaul in view of Hu.

suggest each and every element of independent claim 6. Specifically, Gaul and Hu, fail to teach or suggest "sawing at least one cladding layer of a specified thickness suitable for use as a cladding layer from a first ingot made from a first aluminum material in a longitudinal direction...."

Furthermore, Appellant respectfully submits that Gaul and Hu, alone or in combination, fail to teach or suggest each and every element of independent claim 14. Specifically, Gaul or Hu fail to teach or suggest "sawing said aluminum cladding sheet from said first ingot in a longitudinal direction at a specified thickness suitable for use as a cladding sheet...."

As described on pages 5 and 8 of the Substitute Specification, sawing the cladding sheets from the ingot in a longitudinal direction provides a number of advantages. For example, an excellent plane-parallel arrangement can be achieved resulting in an optimization in thickness of the cladding sheets. In addition, the process of welding between the cladding sheets and core ingots is simplified. Finally, a further advantage is a reduction in required surfaced treatments.

The Office Action acknowledges that Gaul fails to disclose sawing the cladding layer from a first ingot made from a first aluminum material in a longitudinal direction. Indeed, the plain language of Appellant's independent claims 6 and 14 requires ***sawing at least one cladding layer from an ingot***. The term "ingot" is understood as referring to "a mass of metal cast into a convenient shape." As casting is a process in which liquid metal is poured into a mold to form a shape, Appellant respectfully submits that the term "ingot" or "a mass of metal cast into a convenient shape" is exclusionary of a sheet, plate or liner of metal that has been hot-rolled. Appellant directs the Board to page 4, lines 26-

34 of the Substitute Specification, which defines the term ingot as being exclusive of a sheet, plate, or liner of material that is produced by hot-rolling. In contrast, the disclosure of Gaul merely teaches a prior art cladding layer, i.e., a sheet, plate or liner produced by hot-rolling. See column 3, lines 47-51 and column 4, lines 42-43 of Gaul.

Hu fails to cure this deficiency because Hu discloses sawing steel ingots for cogging. See Abstract and Figure of Hu. Steel is an alloy containing predominantly iron. The physical properties of steel such as melting point, malleability, etc. differ from light metals like aluminum. Therefore, even if a layer of steel can be cut using the technology of Hu, Hu does not teach or suggest that the steel has a specified thickness suitable for use as a cladding layer, as required by claims 6 and 14.

Moreover, even if the band saw of Hu was utilized, Gaul does not provide an ingot of aluminum material from which a cladding layer of a specified thickness suitable for use as a cladding layer can be sawed longitudinally. Gaul discloses an ingot that is scalped to form the core layer. See, e.g., column 4, lines 32-47 and lines 65-67. Furthermore, Gaul discloses a sheet, plate or liner for use as a cladding layer. Gaul, however, does not disclose that the sheet, plate or liner can be formed from an aluminum ingot.

In view of the above, Appellant respectfully submits that Gaul and Hu, alone or in combination, fail to teach or suggest each and every element of independent claims 6 and 14.

References fail to provide suggestion or motivation for their modification

Appellant respectfully submits that the rejection under 35 U.S.C. 103(a) is improper because there is no suggestion or motivation to combine the teachings of Gaul and Hu.

In particular, one of ordinary skill in the art of forming aluminum composite materials would not look to the cogging techniques of Hu for guidance in producing cladding layers. Cogging is a metallurgical process involving successive deformation of a bar along its length by open-die forging. In open-die forging, a hammer deforms metal workpieces that are placed on a stationary anvil. In contrast, cladding is a metallurgical process of bonding dissimilar metals or metal alloys together. Therefore, a person of ordinary skill in the art of cladding would have no motivation to modify a known cladding process with another process used in cogging even if both are metallurgical processes absent any explicit or implicit suggestion to do so.

Furthermore, there is no motivation to combine the teachings of Gaul and Hu. Gaul discloses making composites by cladding light metals such as aluminum and magnesium and their alloys (See Gaul column 1, lines 15-21 and column 5, lines 62-66). Hu discloses cogging steel ingots. The physical properties of the light metals disclosed by Gaul differ from the steel disclosed by Hu.

Furthermore, Gaul discloses that after tack welding, the sheets are rolled and that because of the nature of the thinner layer, it spreads considerably relative to the thicker layer (see Gaul column 4, line 70 to column 5, line 9 and column 5, lines 37-45). There is no expectation that steel acting as the thinner layer would spread considerably. Indeed, the opposite would be expected to occur. Because of the hardness of steel, a thicker layer

of a softer lighter metal would be expected to spread more than a thinner layer of a hard metal such as steel. Therefore, one would not choose to combine a steel layer of Hu with the teachings of Gaul to form a composite material because there is no expectation of success.

Even if the teachings were combined, Gaul would no longer operate for its intended purpose, which is to form a composite material from a thin layer of metal and a thick layer of metal, where the thin layer spreads more relative to the thick layer of metal, because of the difference in the physical properties of the metals disclosed by Gaul and Hu. See column 2, lines 29-45 of Gaul.

Moreover, as described above, neither Gaul nor Hu provide an ingot of aluminum material for forming a cladding layer. Therefore, Gaul does not disclose an aluminum ingot, from which a cladding layer can be sawed using the technology of Hu. Accordingly, there is no expectation, based on the teachings of Gaul and Hu, that longitudinal band sawing would succeed in producing of a cladding layer having a specified thickness suitable for use as a cladding layer.

Indeed, it is only viewing Gaul and Hu with impermissible hindsight that the Office Action reaches the conclusion that one having ordinary skill in the art at the time the invention was made would saw an ingot in a longitudinal direction using a band saw to form a cladding layer.

A critical step in analyzing the patentability of claims pursuant to § 103(a) is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field ... close adherence to this methodology is especially important in cases where

the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher." See *W. L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721F.2d 1540, 1553, 220 USPQ 303, 313 (Fed. Cir. 1983).

The then excepted wisdom of the field, taught by Gaul, is to form a cladding layer as a sheet, plate or liner by hot-rolling, not to saw an ingot in a longitudinal direction to form a cladding layer.

As discussed above and incorporated herein by reference, the Office Action has failed to make a *prima facie* case of obviousness because Hu fails to cure the deficiencies of Gaul. That is, neither Gaul nor Hu, viewed alone or in proper combination, teach or suggest sawing at least one cladding layer from an ingot as required by claims 6 and 14. As a result, claims 6 and 14 are patentable over Gaul and Hu, alone or in combination. Furthermore, Appellant respectfully submits that claims 7-13 are patentable as depending from claim 6, and claims 15-17 are patentable as depending from claim 14.

VIII. CLAIMS APPENDIX

The following listing presents the claims as currently appealed:

Claim 1. (Cancelled)

Claim 2. (Cancelled)

Claim 3. (Cancelled)

Claim 4. (Cancelled)

Claim 5. (Cancelled)

Claim 6. A method for producing an aluminum composite material comprising:

sawing at least one cladding layer of a specified thickness suitable for use as a cladding layer from a first ingot made from a first aluminum material in a longitudinal direction;

placing said cladding layer on a side of a second ingot made from a second aluminum material; and

rolling said cladding layer and said second ingot, said rolling comprising several roll passes thereby producing said aluminum composite material.

Claim 7. The method of claim 6 wherein said sawing comprises band sawing said cladding layer from said first ingot.

Claim 8. The method of claim 7 wherein, after said sawing, said cladding layer has a thickness of 2 mm to 100 mm.

Claim 9. The method of claim 8 further comprising, prior to said rolling, treating a surface from the group consisting of:

(a) at least one surface of said cladding layer;

(b) at least one surface of said second ingot; and

(c) a combination of (a) and (b).

Claim 10. The method of claim 7 further comprising, prior to said rolling, treating a surface from the group consisting of:

(a) at least one surface of said cladding layer;

(b) at least one surface of said second ingot; and

(c) a combination of (a) and (b)

Claim 11. The method of claim 6 wherein, after said sawing, said cladding layer has a thickness of 2 mm to 100 mm.

Claim 12. The method of claim 11 further comprising, prior to said rolling, treating a surface from the group consisting of:

(a) at least one surface of said cladding layer;

(b) at least one surface of said second ingot; and

(c) a combination of (a) and (b).

Claim 13. The method of claim 6 further comprising, prior to said rolling, treating a surface from the group consisting of:

(a) at least one surface of said cladding layer;

(b) at least one surface of said second ingot; and

(c) a combination of (a) and (b).

Claim 14. A method for producing at least one aluminum cladding layer from a first ingot made from a first aluminum material, said cladding layer for use in an aluminum composite material, said composite material being produced at least partially by (1) placing said cladding layer on a side of a second ingot made from a second aluminum material, and (2) rolling said cladding layer and said second ingot, said rolling comprising several roll passes thereby producing said composite material, said method comprising sawing said aluminum cladding sheet from said first ingot in a longitudinal direction at a specified thickness suitable for use as a cladding sheet for said composite material.

Claim 15. The method of claim 14 wherein said sawing comprises band sawing said cladding layer from said first ingot.

Claim 16. The method of claim 14 wherein, after said sawing, said cladding layer has a thickness of 2 mm to 100 mm.

Claim 17. The method of claim 14 further comprising, prior to said rolling, treating at least one surface of said cladding layer.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.

XI. CONCLUSION

For the reasons stated above, it is requested that the Examiner's rejection of all pending claims under 35 U.S.C. § 103(a) be reversed.

Respectfully submitted,

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